VI. Operation Attain Document 1

VI.1 Overview

This case, occurring through much of January 1986, is the first of four operations conducted off the coast of Libya that year, ending with Operation El Dorado Canyon, April 15, 1986.

VI.2 Timeline

January 7, 1986

President Reagan issues an executive order banning travel, trade, or other transactions with Libya. A February 1st deadline is set for the withdrawal of 1,000 Americans ordered to leave as part of the US economic sanctions.

January 13, 1986

Two LAAF Mig-25's intercept an EA-3B 150 NM North of Libya.

January 15, 1986

The aircraft carriers USS Coral Sea and USS Saratoga arrive on station in the Mediterranean with 13 other US Navy ships.

January 24, 1986

Carrier operations begin in the central Mediterranean Sea. The New York Times (Bernard Gwertzman, "U.S. Navy Starting Flights off Libya," New York Times, January 24, 1986, p. 8) reported that the American Navy off Libya has informed Tripoli air controllers that planes from two aircraft carriers will be carrying out maneuvers for one week. Also, it was timed for the end of the mission to Western Europe by John C. Whitehead, Deputy Secretary of State, who has been urging allies to take measures against Libya in response to the terrorist attacks on the Rome and Vienna airports on Dec. 27. The United States contends that the Abu Nidal group carried out the attacks, and that that group has received training and support from Libya.

January 25, 1986

Qaddafi declares 32 30N the "line of death" as he boards the PT boat Waheed to travel from Misratah to Bengazi along 32 30 N in defiance of scheduled US naval exercises to the North. New York Times (Judith Miller, "Qaddafi Says he has Called Full Alert," New York Times, January 25, 1986, p. 4) reports that the dollar fell to a seven-year low in Tokyo and declined in Europe after Japan's Finance Minister predicted that the currency would fall to the 190-yen level. Gold prices surge in what traders called a reaction to the falling dollar and to uneasiness over American naval maneuvers off Libya's coast. Demand for gold tends to increase during times of political uncertainty. Navy carrier jets begin operations north of Libya, leaving t open the possibility that the Navy jets from the carriers Coral Sea and Saratoga might be ordered into airspace over the Gulf of Sidra, thereby risking a clash with Libyan forces.

January 26, 1986

Operation Attain Document I begins north of 32 30. USS Saratoga and USS Coral Sea conduct flight operations in international waters to demonstrate US right to operate there. The New York Times (Judith Miller, Qaddafi Sails off to Confront U.S. Warships," New York Times, January 26, 1986, p. 1) reports multiple intercepts of LAAF aircraft north of 32° 30'N over the next four days.

January 28, 1986

New York Times (Bernard Gwertzman, State Dep. Official Warns Libyans (New York Times, January 28, 1986), p. 8) reports that NBC News had been informed by Pentagon officials that the Navy planned to move a vessel, probably the cruiser Yorktown, into the Gulf of Sidra. Other Pentagon officials, however, said the NBC News report was wrong. Also, a senior State Department official explicitly warned for the first time today that the Administration would consider military action against Libya if the nonmilitary sanctions already imposed by Washington fail to achieve results. Finally, many traders who bought late last week because of heightened tensions between the United States and Libya sold those positions. No direct confrontation occurred off the Libyan coast where the United States was staging naval maneuvers.

January 29, 1986

New York Times (Robert Suro, "Libya Makes Offer to Stem Terrorism," New York Times, January 29, 1986, p. 16) reports that Italian Prime Minister Bettino Craxi said that Col. Muammar el-Qaddafi had offered to help halt Arab terrorist operations in Europe if the United States promised not to attack Libya. The Italian Government said it received the Libyan leader's proposal this morning in a message from the Maltese Prime Minister, Karmenu Mifsud Bonnici, who has been trying to serve as an intermediary between Libya and Italy after apparently coordinated attacks on the airports here and in Vienna on Dec. 27. Additionally, A senior Administration official said the United States would make no bargain with Colonel Qaddafi, because there is no one here who would trust his word.

January 30, 1986

New York Times (Judith Miller, "Oil Officials are Said to Leave Libya," New York Times, January 30, 1986, p. 1) reports that about a dozen top managers of American oil companies have quietly left Libya in the last few days. Also, while the Libyan fields may be insignificant to Occidental Petroleum, it and the other American producers are crucial to Libya's economy, analysts said. Oil is Libya's only significant source of hard currency, and American companies are said to account for the production of between 350,000 and 450,000 of Libya's 1.2 million barrels of oil per day.

January 31, 1986

New York Times (Bernard Gwertzman, "US Oil Companies May be Exempted from Libya Curbs," New York Times, January 31, 1986, p. 1) reports that Washington is considering modifying the Libyan sanctions by giving American oil companies licenses to continue to receive some income from Libya. The licenses would prevent the Libyans from reaping a "windfall" from American companies. Crude oil and petroleum products were mixed in thin trading. Analysts said the markets were awaiting a meeting of a special committee of OPEC on Monday.

VI.3 Event Analysis

The Libyan case was selected to gain some sense as to how markets at that time responded to news concerning the potential conflict between the United States and Libya. At this time, the NYMEX market was a relative newcomer to futures trading and forward contracts. As the previous cases have shown, NYMEX forward markets play a critical role in transmitting naval events into impacts on the United States economy. Has this been the case from the start, or have these markets grown in sophistication over time with regards to the manner in which traders interpret breaking news?

As a first step, an event analysis of the early 1986 period was undertaken to determine if a valid statistical relationship existed between naval actions off the Libyan coast and the major oil, commodity, share and exchange rate markets. Specifically, at the time did these markets respond to news concerning naval actions and, if so, did they assume that a disruptive conflict would ensue? Or, instead, did they interpret naval actions as stabilizing the environment through providing increased security and certainty concerning availability and access? Alternatively, did the markets simply disregard naval events as having any particular significance? Using the time line for the Libyan operations in early January, the key events are coded to test these alternative views of naval forward presence and crisis response.

As in the previous cases, the event analysis can be used to statistically test the validity of different hypotheses concerning the manner in which markets interpret naval actions. In the case at hand, EVENTA (see Appendix F) assumes that US naval actions cause increased uncertainty in the oil markets, resulting in price increases, with other events' signs determined by their likely impact on oil prices. A positive sign suggests the markets interpret the event as creating increased uncertainty and or possible disruption, and a negative sign is indicative of markets interpreting the event as reducing tension and or the chance of supply disruption. EVENTB assumes that US naval actions result in reduced uncertainty in the oil markets, resulting in price declines, with other events' signs determined by their likely impact on oil markets. EVENTC assumes that all events and activities are seen by the oil markets as creating instability and increased uncertainty.

Using these three sets of event codes as independent variables the event analysis took the form of a cointegration/error correction regression. As noted in the Methodology section, this technique is ideal for the problem at hand because it focuses on the problem of identifying shocks to a system and the manner in which the system adjusts to those shocks. Specifically the analysis breaks down patterns over time into two components, a short-run impact and a longer-run adjustment whereby historical patterns are re-established.

VI.3.1 The NYMEX Crude Oil Market

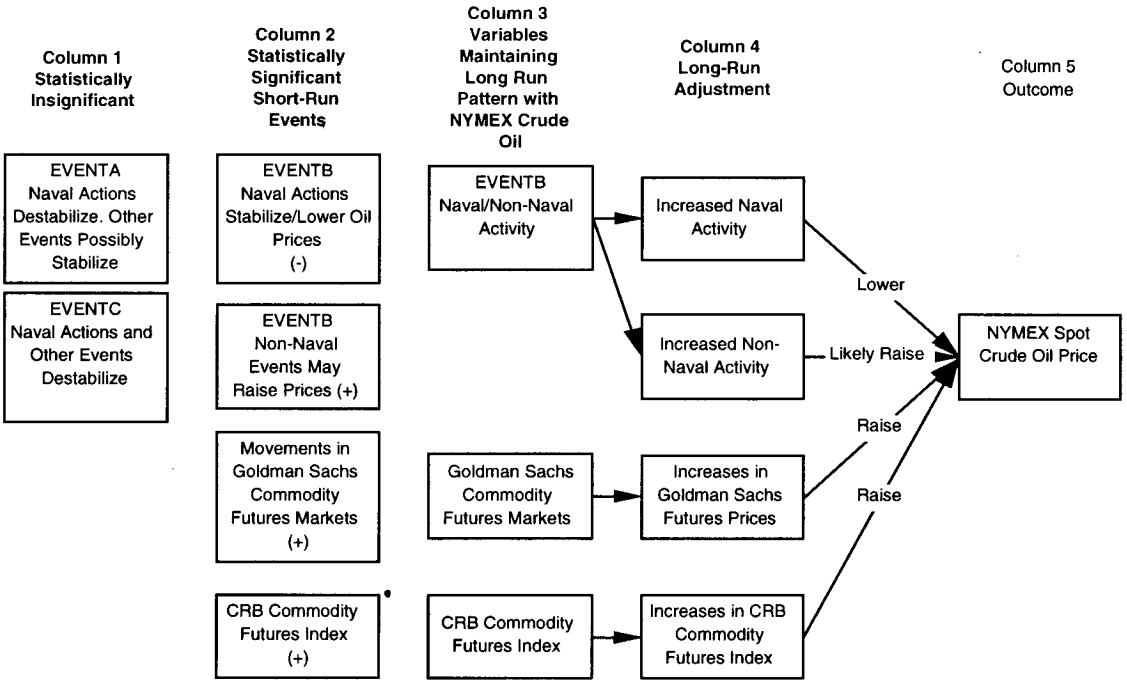
Assessing the NYMEX crude oil markets, the statistical analysis found the significance of EVENTB (but not EVENTA or EVENTC) across different sets of independent variables. This finding suggests that oil markets respond to US naval actions in a positive manner, assuming that these events will provide stability to oil transport routes, production and the like. The result is a lowering of the price of oil following the event. The statistically significant long-run adjustment or error correction term (ecm) suggests that in addition to the short-run impact of EVENTB on the oil market, naval actions set off an adjustment process that also occurs over time. This adjustment is proportional to the difference in price between the NYMEX and the Goldman Sachs commodity index (or the CRB Index) plus EVENTB.

Increases in the CRB reduce the size of the ecm term and, given that term's negative sign in the NYMEX equation, increased upward pressure on the NYMEX oil price over time to restore long-run equilibrium. The EVENTB term is a bit more complicated. Since the naval events in the EVENTB term have a negative sign, their increased activity would tend to reduce the size of the EVENTB variable itself. In turn, a lower EVENTB value in the ecm equation tends to increase the size of the ecm term in the NYMEX equation. Given the negative sign on the ecm, the net effect of increased naval activity would be to reduce oil prices over time.

Summing up (Figure 18), there is a short-run oil price decline following naval events during this period. In addition naval events interact with oil markets over time to gradually bring down the prices in these markets so that they are in line with historical patterns vis-a-vis other commodity markets.

Figure 18

Libyan Operations: Event Analysis of the NYMEX Oil Markets



Note: Based on results from the ARDL/error correction analysis. See Figure 13 for a description of the main linkages and their interpretation.

VI.3.2 Other Event Effects on the NYMEX Oil Market

A standard measure of risk in the oil markets is the premium paid for early delivery as reflected in the spread between the first and second contract. Of the three event measures, EVENTB (negative signs on the naval events) is clearly the superior determinant of this spread. Given the negative sign on the naval events in EVENTB, it is apparent that the movement of naval forces during this episode assured markets of stable conditions thus reducing the premium of the first over the second forward contract.

Finally, the NYMEX market has historically been sensitive to unanticipated developments. As such, the daily rate often fluctuates widely depending on the market's perception of risk, availability and security of oil supplies.. Of the three event measures, EVENTB (negative signs on the naval events) is clearly the superior determinant of this spread. Given the negative sign on the naval events in EVENTB, it is apparent that the movement of naval forces during this episode assured markets of stable conditions thus reducing the magnitude of day-to-day movement of the spot rate.

VI.3.3 New York Stock Exchange Composite Index

The event analysis suggests that two event variables, EVENTB and EVENTC, affect the NYSE Composite Index (Figure 19). The t-statistics for EVENTC are slightly better suggesting that this formulation is the best for capturing the effects of the crisis on the stock market. Taking EVENTC literally, each event (positive or negative in terms of oil prices) is interpreted by investors in a manner that ceteris paribus increases the index. In EVENTB the naval events have a negative sign, and given the negative sign on the EVENTB term, tend to stimulate increases in the index. Conversely EVENTC has a positive sign and the naval events in this formulation have a positive sign. The result is that in each depiction, naval events tend, everything else equal to provide a stimulus for the market.

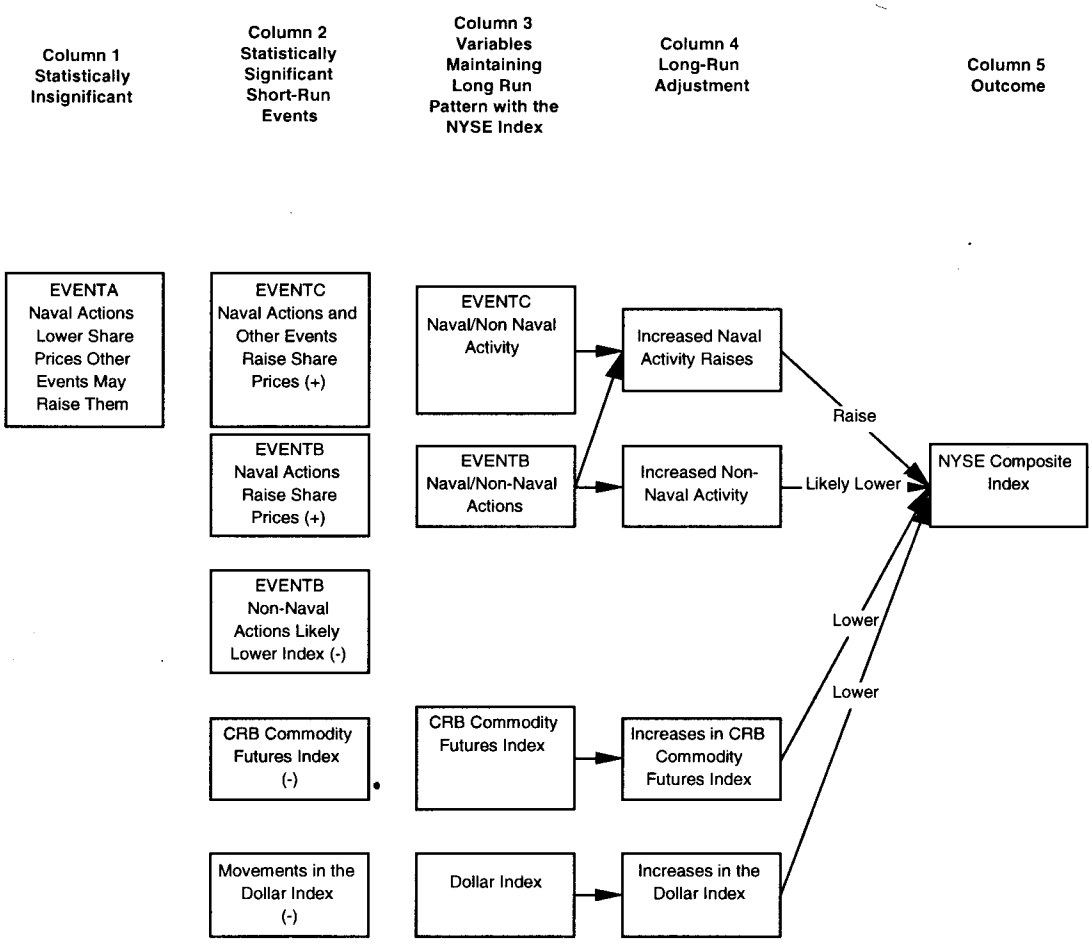
The negative sign of naval events in the EVENTB term together with that term's positive sign in the ecm suggest that naval events reduce the size of the ecm term. Given that ecm itself has a negative sign in the NYSE equation, naval events are seen as having a stimulating effect on the market during the period of adjustment following a crisis event shock. The same is true of naval events in the EVENTC term. Here naval events have a positive sign in the EVENTC series. Given that EVENTC has a negative sign in the ecm equation, naval events reduce the size of the ecm term and given that term's negative sign in the NYSE equation increase the value of the NYSE index during the period of adjustment following a shock.

VI.3.4 The CRB Commodity Index

The events surrounding the Libyan Operations of 1986 have a statistically significant link to the CRB Commodity Price Index (Figure 20). This relationship is best depicted by EVENTC (with all individual events having a positive sign). EVENTB also has several statistically significant links to the CRB. The negative sign on the EVENTC term suggests that naval events (along with other crisis events) tend to reduce the price of commodities. This is consistent with the near equivalent EVENTB, which has a positive sign in the CRB regression. Here the negative sign on naval events in EVENTB would also tend to lower the CRB Commodity index.

Figure 19

Libyan Operations: Event Analysis of the NYSE Composite Index



Note: Based on results from the ARDL/error correction analysis. See Figure 13 for a description of the main linkages and their interpretation.

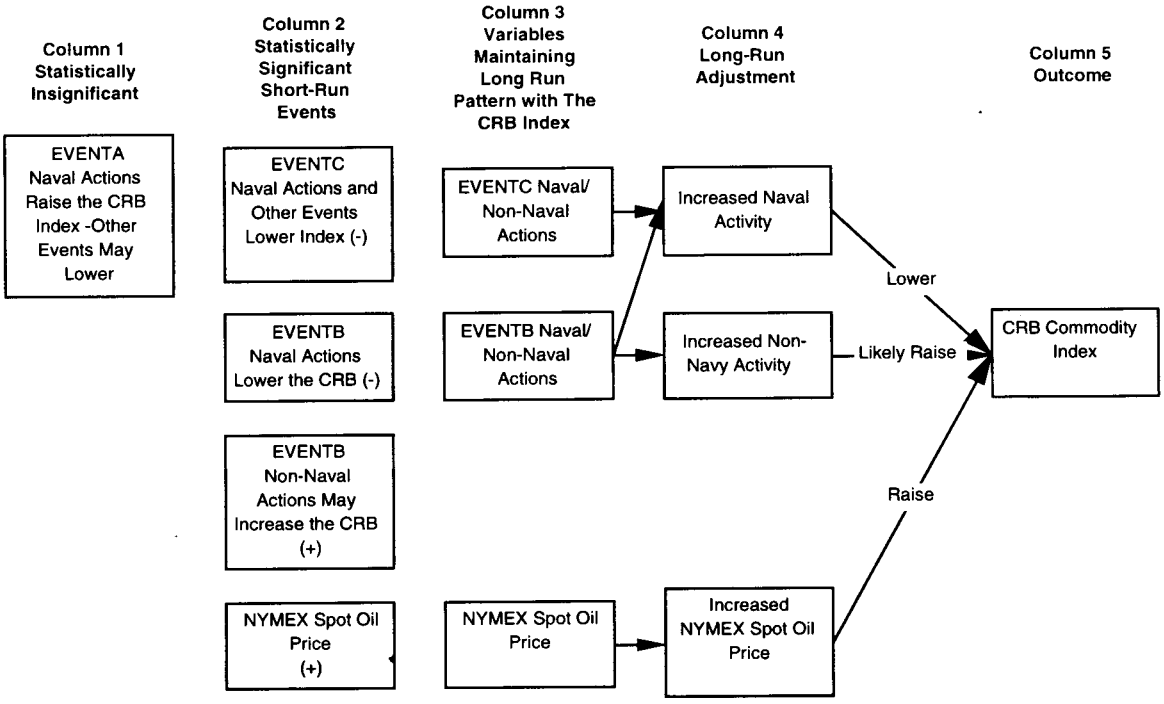
The forces of adjustment controlled by the ecm term reinforce these patterns. Specifically, EVENTC has a positive sign in the ecm. Here increases in EVENTC reduce the size of the ecm

term. Given the negative sign on the ecm term in the CRB equation, naval events reduce the upward pressure on prices. Basically the same pattern occurs with the EVENTB term. This variable has a negative sign in the ecm. However, given the negative sign for naval events in the EVENTB term, increased naval activity (given the negative sign on the ecm term in the CRB price equation) tends to reduce the CRB Commodity Index.

The effects of the event variables on the CRB differ from that found for the NYMEX and the NYSE in one important regard—there is a significant fall off in the statistical links as one moves past the last event, April 18, 1986 (the analysis covers the period to May 31, 1986). The statistical significance of the event variables in the NYSE and NYMEX did not vary much when the non-event period (April 19, 1986-May 31, 1986) was included in the analysis. This suggests that the adjustment period for the CRB Index is much shorter than for the NYSE or NYMEX.

Figure 20

Libyan Operations: Event Analysis of the CRB Commodities Index



Note: Based on results from the ARDL/error correction analysis. See Figure 13 for a description of the main linkages and their interpretation.

VI.4 Economic Benefits

Due to the study's time constraints, the calculation of economic benefits was confined to Operation Attain Document I. Clearly however, given the findings presented below, there is a good chance that additional benefits would have been discovered through a thorough analysis of operations Attain Document II, Attain Document III and El Dorado Canyon.

Key dates were as follows.

January 15, 1986
USS Coral Sea and USS Saratoga arrive on station in the Mediterranean with 13 other US Navy ships.

January 16, 1986
Economic impact reflected in a drop in the NYMEX spot oil price of $1.10 per barrel.

January 20, 1986
Equilibration in oil markets with first forward contract no longer at a premium over the second contract.

January 24, 1986
Carrier operations begin in the Central Mediterranean Ocean.

January 26, 1986
Operation Attain Document I begins north of 32 30.

January 27, 1986
Monday morning short-run oil price shock resulting from initiation of operations the day before.

January 30, 1986
Operation Attain Document I ends as task force departs.

January 31, 1986
Equilibrium in the oil markets with the first and second contracts equal in price.

The event analysis suggests that during this period oil market prices declined following naval operations. Using this fact together with the forward rates (extending through the December 1986 contract) several impacts that carry on through to the US economy are identified in Table 5.

VI.4.1 Assumptions

These events and movements in the oil markets suggest four possible measures for calculating the economic benefits associated with naval forward presence and actions.

1. Initial Impact. This measure is the short-run drop in price on January 16 following the arrival of the Saratoga and Corral Sea on January 15.

2. Equilibration in Oil Markets. This measure is the restoration of the second forward contract premium over the first contract on January 20.

3. Second Impact. This measure is the start of carrier operations on January 24, at which time oil prices fell from $19.65 to $19.35 per barrel.

4. Final equilibration in Oil Markets. This measure is the achievement of equality in the first and second forward contract on January 31.

VI.4.2 Findings

The results of the economic benefit analysis (Table 5) show significant economic gains in real US GDP were derived from this operation. Taking the benefits in stages (initial and final equilibrium), a high low estimate (just looking at the impact in 1986 would have been 7.8 billion 1995 dollars, while a high estimate (impact through 1987) would have been 13.5 billion 1995 dollars. In cases such as this where the actual termination date of benefits is somewhat unclear, the low estimate is no doubt the safer of the two.

VI.5 Conclusions

Besides providing one more example of the economic benefits produced by timely naval action from forward deployed forces, this case is important because it comes at a time when the NYMEX was in the early stages of introducing forward contracts. The results clearly show that the markets were sophisticated early-on in the sense that they reflected a rational, knowledgeable, interpretation of the key crisis events. There was no panic buying or excess speculation on the unfounded notion that a regional conflict would break out. Instead the markets logically assessed the naval actions and concluded that they would aid in maintaining stability in the region.

Table 5

Operation Attain Document I:
Naval Forward Presence Impact on the United States Economy-Oil Price Effect

(Billions 1995 Dollars)

	Initial Stage of Operation		Final Stages of Operation	
	Impact (Jan15/16)	Equilibrium (Jan15/20)	Impact (Jan27/31)	Equilibrium (Jan24/31)
Period				
1986Q1	0.3	0.8	0.5	0.1
1986Q2	0.5	1.3	1.0	0.4
1986Q3	0.7	1.7	1.5	0.7
1986Q4	0.8	1.8	1.9	1.0
1987Q1	0.7	1.6	2.2	1.1
1987Q2	0.5	1.2	1.8	0.9
1987Q3	0.4	1.0	1.5	0.8
1987Q4	0.3	0.7	1.2	0.6
Impact Through 1986	2.3	5.6	4.9	2.2
Impact Through 1987	4.2	10.1	6.7	3.4

Notes: The statistical output of the ARDL/error correction analyses and VAR models on which these results are based are contained in a separate set of appendices available from the authors.

VAR=2. Variables in the VAR Model: Real Gross Domestic Product (USARGDPS), Gross Fixed Capital Formation (USAINVTS), Investment in Machinery/Equipment (USAIMCHS), Investment in Construction (USAICONS), Government Final Consumption (USAGOVTX), Intercept (INTP), NYMEX Oil Prices (NYMEX).

VAR: Optimality: SBC=2, AIC =2

Initial stages of operation: Impact 15/16 assesses the impact on US GDP by subtracting the US GDP estimated on the assumption of January 15 oil prices from that estimated on the basis of January 16 prices. Equilibrium assesses the impact on US GDP by subtracting the US GDP estimated on the basis of January 15 oil prices from that derived on the basis of January 20 oil prices

Final stages of impact: Impact 27/31 assess the impact of US GDP by subtracting the US GDP estimated on the assumption of January 27 oil prices from that estimated on the basis of January 31 prices. Equilibrium assesses the impact on US GDP by subtracting the US GDP estimated on the basis of January 24 oil prices from that estimated on the basis of January 31 prices.